



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,167	07/22/2003	Leonard N. Schiff	000324	8009

23696 7590 06/05/2007  
QUALCOMM INCORPORATED  
5775 MOREHOUSE DR.  
SAN DIEGO, CA 92121

EXAMINER
----------

DEAN, RAYMOND S

ART UNIT	PAPER NUMBER
----------	--------------

2618

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

06/05/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com  
kaskanla@qualcomm.com  
nanm@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/625,167	<b>Applicant(s)</b> SCHIFF ET AL.	
	<b>Examiner</b> Raymond S. Dean	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed March 22, 2007 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicants' assertion on Page 15, 1<sup>st</sup> Paragraph "Patterson does not show changing ...". The return link of Patterson used a TDMA scheme, which combats interference due to the fact that only one terminal will transmit at a particular time therefore the interference relationship among the plurality of terminals will not change.

Examiner respectfully disagrees with Applicants' assertion on Page 18, 1<sup>st</sup> Paragraph "It is respectfully submitted that Hogberg fails to suggest ...". Hogberg teaches CDMA time slots, which are the messaging time slots. Typical CDMA time slots allow initiation of messages at random points within said time slots. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Examiner respectfully disagrees with Applicants' assertion on Page 19, 1<sup>st</sup> Paragraph "Additionally, the changing of the return link ...". The combination of Patterson and Xie teaches the limitation in question.

Examiner respectfully disagrees with Applicants' assertion on Page 19, 4<sup>th</sup> Paragraph "There is no suggestion in Xie that slot duration ...". The motivation for combining Patterson and Xie comes from Xie, which is for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Examiner respectfully disagrees with Applicants' assertion on Page 20, 2<sup>nd</sup> Paragraph "Specifically, the prior art of record fails to show or suggest changing the return link ..." for the same reasons set forth in the Office Action dated November 24, 2006 regarding Claim 2 and for the same reasons set forth above.

Examiner respectfully disagrees with Applicants' assertion on Page 20, 3<sup>rd</sup> Paragraph "The prior art of record fails to show or suggest changing the return link ..." for the same reasons set forth in the Office Action dated November 24, 2006 regarding Claim 7 and for the same reasons set forth above.

Examiner respectfully disagrees with Applicants' assertion on Page 21, 2<sup>nd</sup> Paragraph "The prior art of record fails to show or suggest changing the return link ..." for the same reasons set forth in the Office Action dated November 24, 2006 regarding Claim 14 and for the same reasons set forth above.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 2, 10 – 14, 21, 26 – 31, 38, 43 – 44, 48 – 49, and 55 – 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Patterson et al. (US 2003/0050008).

Regarding Claims 1, 21, Patterson teaches a method comprising: identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and adjusting a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 38, Patterson teaches an apparatus comprising: a comparator identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and a data rate generator adjusting a data rate for a message sent from

the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 49, Patterson teaches a machine readable medium having stored thereon machine executable instructions (Section 0027, the user terminal, satellite, and gateway all comprise processors that control the functions of said user terminal, satellite, and gateway, said processors run program code or machine executable instructions that are stored in memory) that when executed implement a method comprising: identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and adjusting a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 2, Patterson teaches all of the claimed limitations recited in Claim 1. Patterson further teaches wherein identifying the change and adjusting the data rate are performed substantially at the same time by both a transmitter of the message and a receiver of the message (Section 0101).

Regarding Claims 10, 26, 30, 43, 55 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and

transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claims 11, 27, Patterson teaches all of the claimed limitations recited in Claims 1, 21. Patterson further teaches applying a higher coding rate to bits of the message to increase the data rate; and applying a lower coding rate to bits of the message to reduce the data rate (Section 0101).

Regarding Claims 12, 28, Patterson teaches all of the claimed limitations recited in Claims 11, 27. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claims 13, 29, 31, 56 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 49. Patterson further teaches adjusting the data rate to one of a set of discrete data-rate-to-carrier-bandwidth ratios (Sections: 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio).

Regarding Claim 14, Patterson teaches all of the claimed limitations recited in Claim 1. Patterson further teaches code division multiple access (CDMA) channel (Section 0100).

Regarding Claim 44, Patterson teaches all of the claimed limitations recited in Claim 38. Patterson further teaches encoding a bit of the message at a higher coding rate to reduce the data rate; and encode a bit of the message at a lower coding rate to increase the data rate (Section 0101).

Regarding Claim 48, Patterson teaches all of the claimed limitations recited in Claim 38. Patterson further teaches comparing a current data-rate-to-bandwidth ratio for the message to a threshold data-rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



Art Unit: 2618

5. Claims 3 – 9, 22 – 25, 39 – 42, and 50 – 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Kim et al. (US 6,925,113).

Regarding Claims 3, 22, 39, 50, Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson does not teach wherein identifying the change in signal quality comprises identifying a change in a signal-to-noise ratio for the return link from the terminal.

Kim teaches identifying a change in a signal-to-noise ratio (Columns: 4 lines 54 – 67, 5 lines 1 – 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the signal-to-noise ratio of Kim as a means for measuring the link quality as taught by Kim.

Regarding Claim 4, Patterson in view of Kim teaches all of the claimed limitations recited in Claim 3. Kim further teaches wherein the return link signal-to-noise ratio includes both thermal noise and interference (Columns: 4 lines 54 – 67, 5 lines 1 – 21, typical noise in a radio environment comprises interference).

Regarding Claims 5, 23, 40, 51, Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 22, 39, and 50. Patterson further teaches receiving a feedback signal at the terminal from the gateway, said feedback signal indicating at least one of the return link quality as measured at the gateway and the change in the return link quality as measured at the gateway (Section 0101, the

Art Unit: 2618

negotiation of the rate between the terminals and the gateway comprise a feedback signal indicating link quality and change in said link quality).

Regarding Claims 6, 24, 41, 52 Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 22, 39, and 50. Patterson further teaches measuring a forward link quality at the terminal for a forward link from the gateway through the satellite to the terminal; and approximating the return link quality at the gateway based on the forward link quality (Sections: 0101, 0103, the link conditions include the condition or quality of the forward link).

Regarding Claims 7, 25, 42, 53 Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 21, 39, and 50. Patterson further teaches reducing the data rate if the return link quality has fallen below a first threshold; and increasing the data rate if the return link quality has risen above a second threshold (Sections: 0101, 0103).

Regarding Claims 8, 54, Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 50. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claim 9, Patterson in view of Kim teaches all of the claimed limitations recited in Claim 3. Patterson further teaches adjusting the data rate to one of a set of discrete data-rate-to-carrier-bandwidth ratios (Sections: 0101, 0103, the carrier will be

modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio).

6. Claims 17 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Hogberg et al. (US 6,198,730).

Regarding Claims 17, 34, Patterson teaches all of the claimed limitations recited in Claims 1, 21. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach initiating the message at a random point within a particular messaging time slot.

Hogberg teaches a messaging time slot among a plurality of time slots in each of a series of time frames, the method further comprising initiating the message at a random point within a particular messaging time slot (Column 4 lines 5 – 9, the CDMA time slots are the messaging time slots, said time slots allow initiation of messages at random points within said time slots).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the TD-CDMA air interface as an alternative means for supporting multiple subscribers as taught by Hogberg.

Art Unit: 2618

7. Claims 15 – 16, 18 – 20, 32 – 33, 35 – 37, 45 – 47, and 57 – 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Xie et al. (US 6,781,978).

Regarding Claims 15, 32, 45, 57 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame.

Xie teaches suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claims 16, 33, 58 Patterson in view of Xie teaches all of the claimed limitations recited in Claims 15, 32, 57. Xie further teaches resuming the message at a beginning of the subsequent messaging time slot in the subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claims 18, 35, 46, 59 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches wherein the return link comprises a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete.

Xie teaches determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claims 19, 36, 47, Patterson in view of Xie teaches all of the claimed limitations recited in Claims 18, 35, 38. Xie further teaches comparing a duration of the message at the current data rate to a length threshold, said length threshold comprising the particular number of durations (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claims 20, 37 Patterson teaches all of the claimed limitations recited in Claims 18, 35. Patterson further teaches comparing a current data-rate-to-

Art Unit: 2618

bandwidth ratio for the message to a threshold data-rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

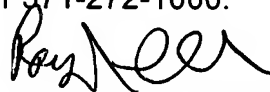
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2618

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Raymond S. Dean  
May 23, 2007



EDWARD F. URBAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600